Oregon Department of Forestry
2600 State St Salem OR 97310
PART III: EXHIBITS

EXHIBIT B
TIMBER SALE OPERATIONS PLAN

(See page 2 for instructions)

Date Received by State: _____

(1) Contract Number: AT-341-2021-W00828-01

(2) Sale Name: Hamlet 8

(3) Contract Expiration Date: 10/31/2023

(4) Purchaser Name: _____

(5) State Brand Information (Complete)

(6) State Representatives:

Name	Circle One	Phone No.	Cell No.	Alt Phone
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(7) Purchaser Representatives:

Name	Circle One	Phone No.	Cell No.	Alt Phone
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(8) Name of Subcontractors and Start Dates:

Project No.	Subcontractor Name.	Start Date	Completion Date	Cell No.	Alt Phone

	Subcontractor Name.	Start Date	Cell No.	Alt Phone
FELLING				
YARDING				

(9) Comments:

_____

_____

_____

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.

Oregon Department of Forestry
2600 State St Salem OR 97310
PART III: EXHIBITS

EXHIBIT B
INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN STATE

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Written Plan.

Explanation of Item No.(from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

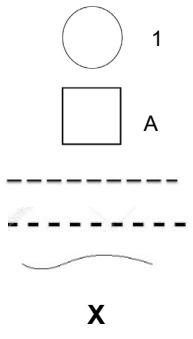
(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not Known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

(9) Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than required by the timber sale contract. Provide spur road specifications
3. Locations of proposed tractor yarding roads. Show if and how marked on the ground.
4. Locations of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.



Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

Approximate setting boundary.

Spur truck roads.

Tractor yarding roads.

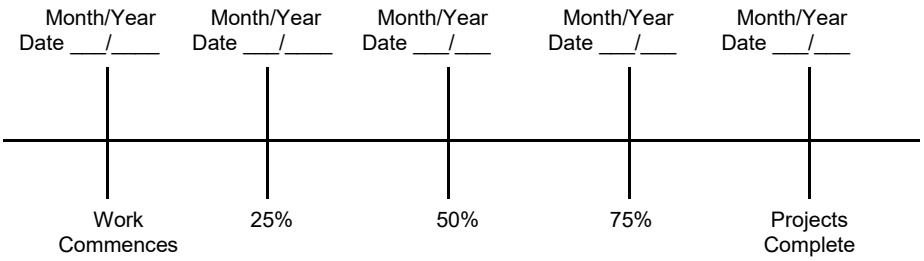
Temporary stream crossings.

Oregon Department of Forestry
2600 State St Salem OR 97310
PART III: EXHIBITS
EXHIBIT B
OPERATIONS PLAN

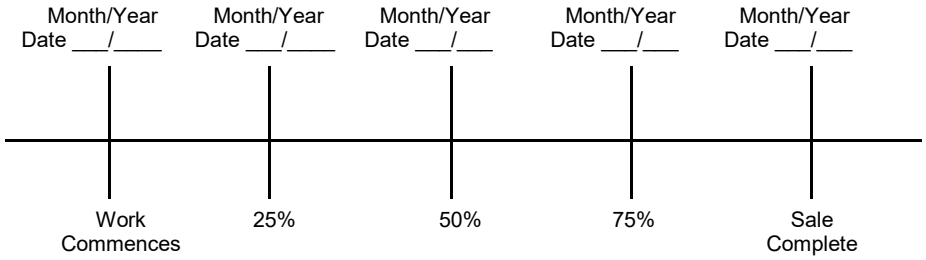
Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

Projects



Harvest & Other Requirements



The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASER's must comply with all applicable state, federal, and local laws.

PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.

APPROVED; Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE (WESTSIDE SCALE)
SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION
Astoria - NWOA

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER 000 ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Third Party Scaling Organization)

(3) FROM: Astoria Phone (503) 325-5451
(State Forestry District)
Address: 92219 HWY 202
ASTORIA,OR 97103

(4) PURCHASER: _____
Mailing Address: _____
Phone Number: _____

(5) **MINIMUM SCALING SPECIFICATIONS**

SPECIES	MINIMUM NET VOLUME
Conifers	10
Hardwoods	10

*Apply minimum volume test to whole logs over 40' Westside

(6) WESTSIDE SCALE:
Use Region 6 actual taper rule. Logs over 40'.

	YES	NO
(7) Weight Scale Sample	☑	☐

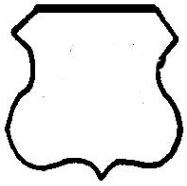
(8) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	Species	Yard	Truck	Weight

(9) **SALE NAME:** Hamlet 8
COUNTY: Clatsop

(10) **STATE CONTRACT NUMBER:**
AT-341-2021-W00828-01

(11) STATE BRAND REGISTRATION NUMBER: _____

(12) **STATE BRAND INFORMATION:**



(13) PAINT REQUIRED: YES ☑
COLOR: Orange

(14) **SPECIAL REQUESTS** (Check applicable)

PEELABLE CULL (all species).....	☑
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE.....	☑
ADD-BACK VOLUME - Deductions due to delay...	☑

OTHER :

(15) **REMARKS**

Operator's Name (Optional inclusion by District): _____

(16) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.
General Distribution: TPSO, Approved Scaling Locations(s), Purchaser, Specific distribution instructions are outlined on the last page of this report: Instructions for Form

Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE
INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)
Astoria - NWOA

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.

(2) Designate Third Party Scaling Organization (TPSO).

Columbia River Log Scaling & Grading Bureau
P.O.Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: services@crls.com

Mountain Western Log Scaling & Grading Bureau
P.O.Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@southernoregonlogscaling.com

Northwest Log Scalers Inc.
6137 NE 63rd St, Vancouver, WA, 98661
Phone: (360) 553-7212 ext. 4 Fax:(360) 553-7213
Email: info@nwlogscalers.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Yamhill Log Scaling & Grading Bureau
P.O.Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhilllog@frontier.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O.Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@sol.com

(3) State District office, address and phone.

(4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.

(5) Minimum Scaling Specifications.

(6) Westside - Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs - All Species - State Forestry Department Scaling Practices (Westside).

(7) Weight Scale Sample - Check box if sale is to be a Weight Scale Sample. All specifies for handling, scaling and processing will be attached or explained in the Remarks section item (15).

(8) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.

(9) Enter sale name and county.

(10) Enter sale Contract number.

(11) Enter Oregon's State Brand Registry Number (**REQUIRED**).

(12) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section item (15).

(13) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.

(14) Special Requests. These are requests that will be applied to ODF timber sales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked". If "Other" is indicated, it must contain a description and any necessary comments.

(15) Use this space to designate any weight conversion factors, per load volumes, weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.

(16) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us.
Scaling Instructions for each brand should be scanned separately, for each approved TPSO.

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

General Distribution: TPSO, Approved Scaling Locations(s), Purchaser, Specific distribution instructions are outlined on the last page of this report: Instructions for Form

Oregon Department of Forestry
EXHIBIT C - PULP SORT
PROCESSING INSTRUCTIONS - LOCATION APPROVAL
BRAND INFORMATION
Astoria, NWOA

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER 000 ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Approved Pulp Processing Facility)

(3) FROM: Astoria Phone (503) 325-5451
(State Forestry District)
Address: 92219 HWY 202
ASTORIA,OR 97103

(4) PURCHASER: _____

(5) Scaling Bureau **(TPSO)** Processing Weight receipts:
_____
Mailing Address: _____
_____
Phone Number: _____

(6) **STATE Definition of Approved Pulp Sort:**
- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than 8 inches marked with blue paint.

(7) PULP FACILITY PROCESSING INSTRUCTIONS:
- Pulp loads shall be weighed in lieu of scaling.
- One Ton = 2000 lbs(Short Ton).
- Pulp loads shall have a yellow Log Load Receipt attached.
- Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.
- Weigher shall sign the weight receipt.
- Weigher shall record the Log Load Receipt number on the weight receipt.
- Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.

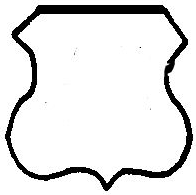
(8) TPSO PROCESSING INSTRUCTIONS
- Submit data files daily (or each day of activity).
- Mail or deliver scale tickets weekly to ODF Headquarters in Salem.

(9) **SALE NAME:** Hamlet 8
COUNTY: Clatsop

(10) **STATE CONTRACT NUMBER:**
AT-341-2021-W00828-01

(11) STATE BRAND REGISTRATION NUMBER: _____

(12) STATE BRAND INFORMATION:



(13) **REMARKS:**

Operator's Name (Optional inclusion by District):

(14) SIGNATURES:

Purchaser or Authorized Representative Date

State Forester Representative Date

State Forester Representative PRINT NAME

Notify the District within one hour when branding is inadequate for quick identification, the logs are marked with orange paint, the receipts are missing, not correctly or completely filled out, and/or logs do not meet the specifications of the STATE definition of Approved Pulp Sort.

Distribution: ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit

Oregon Department of Forestry
EXHIBIT C - PULP SORT
Instructions for Form 343-307b

Astoria, NWOA

(1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section(13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.

(2) **Must Complete.** Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location http://www.odf.state.or.us/DIVSIONS/management/asset_management/ScalingLocation.asp

(3) **Must Complete.** State Forestry District and District Phone Number.

(4) **Must Complete.** Purchaser's business name as it appears on the Contract.

(5) **Must Complete.** Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

Columbia River Log Scaling & Grading Bureau
P.O.Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: services@crls.com

Mountain Western Log Scaling & Grading Bureau
P.O.Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@southernoregonlogscaling.com

Northwest Log Scalers Inc.
6137 NE 63rd St, Vancouver, WA, 98661
Phone: (360) 553-7212 ext. 4 Fax:(360) 553-7213
Email: info@nwlogscalers.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Yamhill Log Scaling & Grading Bureau
P.O.Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhilllog@frontier.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O.Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@sol.com

(6) **Must Complete.** Big end log not to exceed _____ inches. Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.

(7) **Must Complete.** Enter sale name and county. If more than one county write in all the counties that the sale is located in.

(8) **Must Complete.** Enter sale Contract number.

(9) **Must Complete.** Enter Oregon's State Brand Registry Number **(REQUIRED).**

(10) **Must Complete.** Show brand assigned to timber sale. One brand only, if more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item(13).

(11) Use this section to list any special instructions or the reason for any revisions in section item(1).

(12) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution(See specific instructions on pg.2): ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
14 feet	N/A	1A to 1B	0+00 to 1+50	Outsloped
14 feet	N/A	4A to 4B	0+00 to 1+50	Outsloped
14 feet	N/A	4C to 4D	0+00 to 1+50	Outsloped
16 feet	12 feet	5A to 5B	0+00 to 26+70	Crowned/Ditch
16 feet	12 feet	5C to 5D	0+00 to 2+00	Crowned/Ditch
16 feet	12 feet	5E to 5F	0+00 to 1+85	Crowned/Ditch
16 feet	12 feet	6A to 6B	0+00 to 1+00	Crowned/Ditch
14 feet	N/A	6A to 6B	1+00 to 14+50	Outsloped
14 feet	N/A	6C to 6D	0+00 to 2+65	Outsloped
16 feet	12 feet	7A to 7B	0+00 to 1+00	Crowned/Ditch
14 feet	N/A	7A to 7B	1+00 to 10+50	Outsloped
16 feet	12 feet	I1 to I2	0+00 to 34+75	Crowned/Ditch
16 feet	12 feet	I3 to I4	0+00 to 25+75	Crowned/Ditch
16 feet	12 feet	I5 to I6	0+00 to 8+70	Crowned/Ditch
16 feet	12 feet	I7 to I8	0+00 to 2+80	Crowned/Ditch
16 feet	12 feet	I9 to I10	0+00 to 16+45	Crowned/Ditch
16 feet	12 feet	I11 to I12	0+00 to 53+95	Crowned/Ditch
16 feet	12 feet	I13 to I14	0+00 to 5+20	Crowned/Ditch
16 feet	12 feet	I15 to I16	0+00 to 16+55	Crowned/Ditch
16 feet	12 feet	I17 to I18	0+00 to 29+05	Crowned/Ditch
16 feet	12 feet	I19 to I20	0+00 to 0+85	Crowned/Ditch
16 feet	12 feet	I21 to I22	0+00 to 18+45	Crowned/Ditch
16 feet	12 feet	I23 to I24	0+00 to 86+80	Crowned/Ditch
16 feet	12 feet	I25 to I26	0+00 to 6+80	Crowned/Ditch
16 feet	12 feet	I27 to I28	0+00 to 37+00	Crowned/Ditch

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits.

All danger trees, leaners, and Snags outside the clearing limits which could fall and hit the road shall be felled.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

CLEARING CLASSIFICATION.

New Construction - Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE.

Improvement - Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE.

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cut slopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections.

GRUBBING CLASSIFICATION.

New construction - from the top of the cut slope to the toe of the fill.

Improvements and reconstructions - 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Clearing and grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees. Clearing and grubbing debris may be scattered through openings in the timber outside of the cleared right-of-way, except for the following areas where debris shall be fully contained and hauled to a designated waste area:

- Where end-haul is required
- On side slopes exceeding 50 percent
- On unstable areas
- In any stream channel (Type F, N or D) or where material may enter the stream channel.

Clearing, grubbing, and associated disposal shall be completed prior to subgrade approval.

EXCAVATION. Excavation and grading shall not be done when weather and/or ground conditions are such that damage will result to existing subgrade or cause excessive erosion.

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided. Plans are provided between points 5A to 5B and 6A to 6B.

Unless road plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 50 percent, the road shall be on full bench for the width specified.

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course. Leaving sidecast below the road is only permissible if specifically allowed in “Full Bench and End Haul Requirements” in this Exhibit.

All fills shall be machine compacted according to the “Compaction and Processing Requirements” in this Exhibit.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

ROAD WIDTH LIMITATIONS. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified. Extra subgrade width shall be required for:

Fill Widening. Add to each fill shoulder 1 foot for fills 3 feet to 6 feet high; 2 feet for fills over 6 feet high.

Curve Widening. Widen the inside shoulder of all curves as specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Subgrade. Subgrade shall be crowned, outsloped, or insloped at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit.

Ditch. Construct V shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

TURNOUTS. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet apart and as marked in the field.

SLOPES	Cut Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	½ :1	
Soil - side slopes 50% and over	¾ :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cut slope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit I, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

(1) Timber Removal. Remove all trees within posted Right-of-Way Boundary as specified in Section 2210, Designated Timber.

(2) Excavated Materials. Excavated materials shall be utilized for road construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

(3) Drainage Ditches. Construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchlines and ditchouts shall not exceed a 1:1 slope. Construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.

(4) Culvert Installation. Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing. Fill construction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. STATE may require the use of crushed rock for culvert bedding.

(5) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.

(6) Controlled Blasting. Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.

(7) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.

(b) Subgrade shall be crowned, outsloped, or insloped at 4 to 6 percent.

(c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the “Compaction and Processing Requirements” in this Exhibit. Final road surface shall be crowned, outsloped, or insloped at 4 to 6 percent.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
1A to 1B	0+00	Begin road construction. Utilize 33 cubic yards of pit-run for approach. No excavated material shall be placed on existing asphalt road surface.
	1+50	End road construction.
4A to 4B	0+00	Begin road construction. Utilize 33 cubic yards of pit-run for approach. No excavated material shall be placed on existing asphalt road surface.
	1+50	End road construction.
4C to 4D	0+00	Begin road construction. Utilize 33 cubic yards of pit-run for approach. No excavated material shall be placed on existing asphalt road surface.
	1+50	End road construction.
5A to 5B	0+65	Begin full bench construction. End haul excess embankment material for use in fill construction or to waste area at 5A to 5B 26+70. End haul clearing debris to stable location. Begin cut slope rounding.
	2+55	End full bench construction.
	2+85	End cut slope rounding.
	11+35	Begin full bench construction. End haul excess embankment material for use in fill construction or to waste area at 5A to 5B 26+70. End haul clearing debris to stable location. Begin cut slope rounding.
	12+90	End cut slope rounding.
	13+50	End full bench construction.
	15+00	Begin cut slope rounding.
	16+15	End cut slope rounding.
	17+45	Begin cut slope rounding. Begin curve widening of 1 foot inside of curve.
	18+05	Begin full bench construction. End haul excess embankment material for use in fill construction or to waste area at 5A to 5B 26+70. End haul clearing debris to stable location.
	18+20	End curve widening.
	19+10	End full bench construction.
	19+35	End cut slope rounding.
	19+85	Begin curve widening of 1 foot inside of curve.
	20+40	Begin full bench construction. End haul excess embankment material for use in fill construction or to waste area at 5A to 5B 26+70. End haul clearing debris to stable location. Begin cut slope rounding. End of curve widening.
	20+90	Begin curve widening of 2 foot inside of curve.
	21+55	End of curve widening.
	22+00	End full bench construction.
	22+80	End cut slope rounding

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description
5A to 5B	23+00	Install culvert.
	23+30	Begin cut slope rounding.
	24+45	End cut slope rounding
	26+70	Construct waste area as needed, as directed by STATE. Final waste area shall be leveled and compacted.
6A to 6B	0+00	Begin 10 inch lift of 4”-0” crushed rock.
	0+60	Begin curve widening of 1 foot inside of curve.
	1+00	Begin cut slope rounding. End 10 inch lift of 4”-0” crushed rock.
	1+30	End of curve widening.
	1+95	Begin curve widening of 6 foot inside of curve.
	2+20	End cut slope rounding.
	3+45	End of curve widening.
	3+70	Begin full bench construction. End haul excess embankment material for use in fill construction or scatter outside of right-of-way. End haul clearing debris to stable location. Begin cut slope rounding.
	4+30	End full bench construction.
	5+20	Begin full bench construction. End haul excess embankment material for use in fill construction or scatter outside of right-of-way. End haul clearing debris to stable location.
	5+30	Begin curve widening of 4 foot inside of curve.
	6+10	End full bench construction. End cut slope rounding.
	6+90	End of curve widening.
	7+40	Begin curve widening of 2 foot inside of curve.
	8+55	End of curve widening.
	9+20	Begin curve widening of 2 foot inside of curve.
	10+45	End of curve widening.
	10+80	Begin curve widening of 1 foot inside of curve.
	12+30	End of curve widening.
6C to 6D	0+00	Begin road construction.
	2+65	Construct landing. End road construction.
7A to 7B	0+00	Begin 10 inch lift of 4”-0” crushed rock.
	1+00	End 10 inch lift of 4”-0” crushed rock.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

(1) Timber Removal. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.

(2) Excavated Materials. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit. Excess excavated material not used for embankment shall be sidecast on slopes up to 30 percent, end hauled, or pushed to waste areas as shown on Exhibit A and marked in the field, or be used for fill.

(3) Bank Slough Removal. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A.

(4) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Unsuitable backfill material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit.

(5) Culvert Cleaning and Repairs. Remove all debris from inside all existing culverts on the road improvement segment, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels.

(6) Rock Ditch Filter. Construct rock ditch filters as directed by STATE. Excavate a one foot deep, tapered sump on the upslope side, adjacent to the rock ditch filter. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Construct each rock ditch filter with clean drain rock (6"-4" pit-run rock) and placed at a 2:1 slope within the specified ditch. Construct the center of the rock ditch filter at least 6 inches lower than the ends, to act as a spillway for runoff and to prevent water from flowing around the filter. Space the filters so that the bottom elevation of the upper filter is the same as the top center elevation of the next filter. Rock ditch filter dimensions shall be as shown on the "Typical Rock Ditch Filter" exhibit or as directed by STATE. Locations of the filters shall be determined by STATE.

(7) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas.

(8) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

(9) Waste areas shall be uniformly sloped and compacted for drainage.

(10) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.

(b) Cut out all potholes and/or washboard sections from the existing surfacing.

(c) Apply required patching and leveling rock, as directed by STATE.

(d) Process (grade and mix) the existing surface and added base rock. Provide for a crown, outslope, or inslope of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

(e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I1 to I2	5+60	Install rock ditchfilters in ditchline. Utilize 11 cubic yards of 6"-4" pit run.
	8+90	Install rock ditchfilters in ditchline on both sides of culvert inlet. Utilize 22 cubic yards of 6"-4" pit run.
	14+50	Install rock ditchfilters in ditchline on both sides of culvert inlet. Utilize 22 cubic yards of 6"-4" pit run.
	17+85	Install rock ditchfilters in ditchline on both sides of culvert inlet. Utilize 22 cubic yards of 6"-4" pit run.
	22+05	Install rock ditchfilters in ditchline on both sides of culvert inlet. Utilize 22 cubic yards of 6"-4" pit run.
I5 to I6	4+10	Build turnaround.
	6+60	Install disconnect culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill.
I7 to I8	0+00	Replace culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill.
	1+65	Build turnaround.
I11 to I12	47+40	Begin 10 inch lift of 4"-0" crushed rock.
	53+95	End 10 inch lift of 4"-0" crushed rock. End of road improvement.
I15 to I16	0+00	Install disconnect culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill.
I17 to I18	13+75	Build turnaround.
I21 to I22	2+20	Install culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill.
	2+90	Construct ditchout right.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description
I23 to I24	71+95	Replace culvert, utilize 44 cubic yard of ¾”-0” crushed rock, and fill in outlet ditchout with waste material in the vicinity and from 6A to 6B as needed. Widen junction and utilize a 10” lift of 4”-0” crushed rock for portion of junction.
	82+25	Replace culvert. Utilize 44 cubic yards of ¾”-0” crushed rock for bedding and backfill.
	86+70	Replace culvert. Utilize 33 cubic yards of ¾”-0” crushed rock for bedding and backfill.
I25 to I26	0+00	Begin sod removal, scatter waste.
	6+80	End sod removal.
I27 to I28	9+40	Install rock ditchfilters in ditchline. Utilize 11 cubic yards of 6”-4” pit run.
	10+45	Install rock ditchfilters in ditchline. Utilize 11 cubic yards of 6”-4” pit run.
	20+20	Install disconnect culvert. Utilize 33 cubic yards of ¾”-0” crushed rock for bedding and backfill.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST
5A to 5B	0+65 to 2+55	2
	11+35 to 13+50	
	18+05 to 19+10	
	20+40 to 22+00	
6A to 6B	3+70 to 4+30	2
	5+20 to 6+10	

Full Bench and End-Haul Areas General Requirements

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Material shall not be sidecast unless specified above.

Clearing and grubbing debris shall be end-hauled.

When controlled blasting is required, it shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.

Containment/Sidecast

(1) Full: No excavated material remains below the road.

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

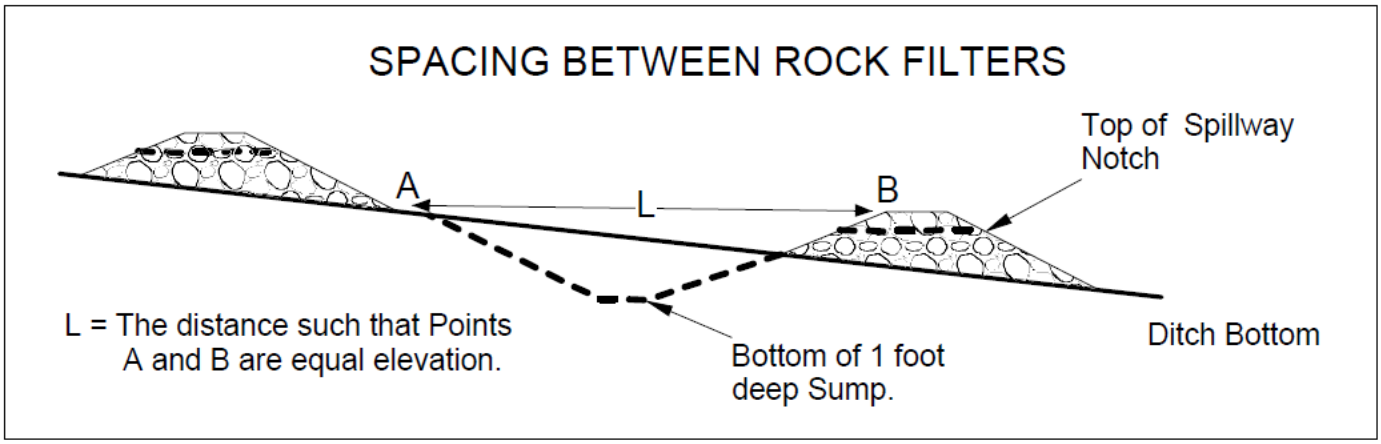
- .
- Setback from slope break shall be a minimum of 20 feet horizontal measurement.

Waste Area Treatment

- Deposit at waste area, spread evenly, compact, and provide adequate drainage.
- Pile woody debris separate from other waste material.

EXHIBIT D

TYPICAL ROCK DITCH FILTER



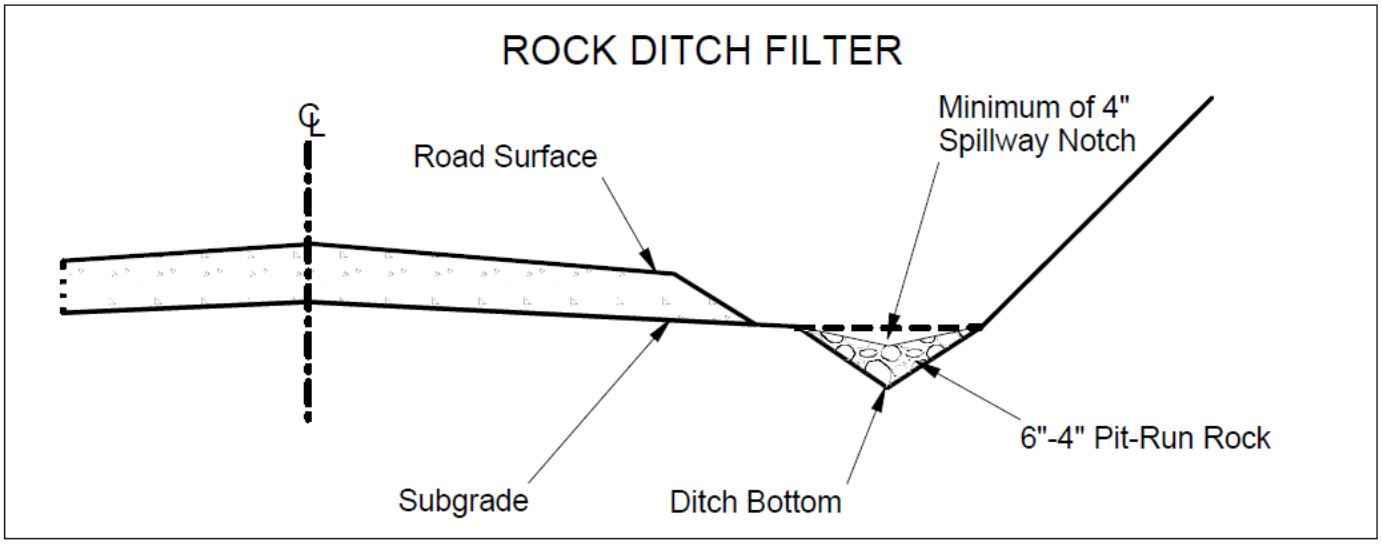


EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 1A to 1B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B Volume (CY) Per		0+00 to 1+50 Number of		
Junction Rock	4"-0" pit-run	0+00	N/A	load	11	loads	3	33
Total Rock for Road Segment:			1A to 1B					33
ROAD SEGMENT: 4A to 4B				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4A to 4B **Volume (CY) Per**		0+00 to 1+50 **Number of**		
Junction Rock	4"-0" pit-run	0+00	N/A	load	11	loads	3	33
Total Rock for Road Segment:			4A to 4B					33
ROAD SEGMENT: 4C to 4D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4C to 4D **Volume (CY) Per**		0+00 to 1+50 **Number of**		
Junction Rock	4"-0" pit-run	0+00	N/A	load	11	loads	3	33
Total Rock for Road Segment:			4C to 4D					33
ROAD SEGMENT: 5A to 5B				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5A to 5B **Volume (CY) Per**		0+00 to 26+70 **Number of**		
Base Rock	4"-0" crushed	0+00 to 26+70	10	station	63	stations	26.70	1,683
Junction Rock	4"-0" crushed	0+00, 11+00	N/A	junction	22	junctions	2	44
Turnouts	4"-0" crushed	14+75, 23+95	N/A	turnout	22	turnout's	2	44
Turnarounds	4"-0" crushed	6+00, 10+75, 16+25,25+30	N/A	turnaround	33	turnaround's	4	132
Landings	6"-0" pit run	4+25, 8+50, 17+10, 20+10, 24+45, 26+70	N/A	landing	55	landings	6	330
Total Rock for Road Segment:			5A to 5B					2, 233
ROAD SEGMENT: 5C to 5D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5C to 5D **Volume (CY) Per**		0+00 to 2+00 **Number Of**		
Base Rock	4"-0" crushed	0+00 to 2+00	N/A	station	63	stations	2.00	126
Junction Rock	4"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Landings	6"-0" pit run	2+00	N/A	landing	55	landings	1	55
Total Rock for Road Segment:			5C to 5D					203
ROAD SEGMENT: 5E to 5F				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5E to 5F **Volume (CY) Per**		0+00 to 1+85 **Number of**		
Base Rock	4"-0" crushed	0+00 to 1+85	N/A	station	63	stations	1.85	117
Junction Rock	4"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Landings	6"-0" pit run	1+85	N/A	landing	55	landings	1	55
Total Rock for Road Segment:			5E to 5F					194

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 6A to 6B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	6A to 6B		0+00 to 14+50		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" crushed	0+00 to 1+00	N/A	station	63	stations	1	63
Junction Rock	4"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Total Rock for Road Segment:			6A to 6B					85

ROAD SEGMENT: 7A to 7B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	7A to 7B		0+00 to 10+45		
				Volume (CY) Per		Number of		
Base Rock	4"-0" crushed	0+00 to 1+00	N/A	station	63	stations	1	63
Junction Rock	4"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Total Rock for Road Segment:			7A to 7B					85

ROAD SEGMENT: I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 34+75		
				Volume (CY) Per		Number Of		
Surfacing	1 1/2"-0" crushed	0+00 to 34+75	2	station	13	stations	34.75	452
Junctions	1 1/2"-0" crushed	0+00, 22+55, 34+40	2	junction	11	junctions	3	33
Rock Ditch Filters	6"-4" pit run	5+60, 8+90, 14+50, 7+85, 22+05	N/A	3 filter series	11	3 filter series (see instructions)	9	99
Turnouts	1 1/2"-0" crushed	15+35, 21+15, 25+75	2	turnout	11	turnout	2	22
Total Rock for Road Segment:			I1 to I2					606

ROAD SEGMENT: I3 to I4				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 25+75		
				Volume (CY) Per		Number of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	6	66
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Turnouts	4"-0" crushed	4+60	N/A	turnout	11	turnouts	1	11
Turnout/Turnaround	4"-0" crushed	12+70	N/A	TO/TA	44	TO/TA's	1	44
Total Rock for Road Segment:			I3 to I4					143

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I5 to I6				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	I5 to I6		0+00 to 8+70		
				Volume (CY) Per		Number Of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	7	77
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Turnaround	4"-0" crushed	4+10	N/A	turnaround	22	turnaround	1	22
Culvert Bedding and Backfill	3/4"-0" crushed	6+60	N/A	culvert	33	culverts	1	33
Landings	6"-0" pit run	8+70	N/A	landing	44	landings	1	44
Total Rock for Road Segment:			I5 to I6					187

ROAD SEGMENT: I7 to I8				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8		0+00 to 2+80		
				Volume (CY) Per		Number of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	2	22
Culvert Bedding and Backfill	3/4"-0" crushed	0+00	N/A	culvert	33	culverts	1	33
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Turnaround	4"-0" crushed	1+65	N/A	turnaround	22	turnaround	1	22
Landings	6"-0" pit run	2+80	N/A	landing	44	landings	1	44
Total Rock for Road Segment:			I7 to I8					132

ROAD SEGMENT: I9 to I10				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10		0+00 to 16+45		
				Volume (CY) Per		Number Of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	3	33
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Junctions	4"-0" crushed	5+40	N/A	junction	11	junctions	1	11
Turnouts	4"-0" crushed	1+25, 2+90, 11+15	N/A	turnout	11	turnout	3	33
Turnaround	4"-0" crushed	15+65	N/A	turnaround	11	turnaround	1	11
Landings	6"-0" pit run	16+45	N/A	landing	44	landings	1	44
Total Rock for Road Segment:			I9 to I10					143

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I11 to I12				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I11 to I12		0+00 to 53+95		
				Volume (CY) Per		**Number of**		
Leveling Rock	1 1/2"-0" crushed		N/A	load	11	loads	8	88
Leveling Rock	4"-0" crushed		N/A	load	11	loads	3	33
Junctions	1 1/2"-0" crushed	0+00, 18+25	N/A	junction	11	junctions	2	22
Turnouts	1 1/2"-0" crushed	5+45, 8+90, 16+00	2	turnout	11	turnout	3	33
Turnouts	4"-0" crushed	22+40, 28+10, 34+65, 39+75	N/A	turnout	11	turnout	4	44
Junctions	4"-0" crushed	45+75	N/A	junction	11	junctions	1	11
Surfacing	4"-0" crushed	47+40 to 53+95	10	station	63	stations	6.55	413
Turnouts	4"-0" crushed	48+05	N/A	turnout	22	turnout	1	22
Turnaround	4"-0" crushed	51+30	N/A	turnaround	22	turnaround	1	22
Total Rock for Road Segment:			I11 to I12					688
ROAD SEGMENT: I13 to I14				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I13 to I14		0+00 to 5+20		
				Volume (CY) Per		**Number Of**		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	2	22
Junctions	4"-0" crushed	5+20	N/A	junction	11	junctions	1	11
Total Rock for Road Segment:			I13 to I14					33
ROAD SEGMENT: I15 to I16				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I15 to I16		0+00 to 16+55		
				Volume (CY) Per		**Number of**		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	8	88
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Culvert Bedding and Backfill	3/4"-0" crushed	0+00	N/A	culvert	33	culverts	1	33
Turnaround	4"-0" crushed	5+75, 9+55	N/A	turnaround	11	turnaround	2	22
Turnouts	4"-0" crushed	13+40	N/A	turnout	11	turnout	1	11
Total Rock for Road Segment:			I15 to I16					165

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I17 to I18				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I17 to I18		0+00 to 29+05		
				Volume (CY) Per		**Number Of**		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	6	66
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	22	junctions	1	22
Junctions	4"-0" crushed	25+50	N/A	junction	11	junctions	1	11
Turnouts	4"-0" crushed	7+35, 12+00	N/A	turnout	11	turnout	2	22
Turnaround	4"-0" crushed	13+75	N/A	turnaround	22	turnaround	1	22
Landings	6"-0" pit run	29+05	N/A	landing	44	landings	1	44
Total Rock for Road Segment:			I17 to I18					187
ROAD SEGMENT: I19 to I20				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I19 to I20		0+00 to 0+85		
				Volume (CY) Per		**Number of**		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	2	22
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Landings	6"-0" pit run	0+85	N/A	landing	44	landings	1	44
Total Rock for Road Segment:			I19 to I20					77
ROAD SEGMENT: I21 to I22				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I21 to I22		0+00 to 18+45		
				Volume (CY) Per		**Number Of**		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	3	33
Junctions	1 1/2"-0" crushed	0+00	N/A	junction	11	junctions	1	11
Culvert Bedding and Backfill	3/4"-0" crushed	2+20	N/A	load	11	loads	3	33
Turnouts	4"-0" crushed	2+90, 10+90	4	turnout	11	turnout	2	22
Turnaround	4"-0" crushed	7+00	4	turnaround	22	turnaround	1	22
Junctions	4"-0" crushed	15+85	4	load	11	loads	2	22
Total Rock for Road Segment:			I21 to I22					143

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I23 to I24				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I23 to I24		0+00 to 86+80		
				Volume (CY) Per		Number of		
Leveling Rock	1 1/2"-0" crushed		N/A	load	11	loads	12	132
Leveling Rock	4"-0" crushed		N/A	load	11	loads	3	33
Junctions	1 1/2"-0" crushed	0+00, 30+70, 49+45, 50+25, 65+10, 70+65	2	junction	11	junctions	7	77
Turnouts	1 1/2"-0" crushed	2+90, 10+90	2	turnout	11	turnout	2	22
Junctions	4"-0" crushed	71+95	10	junction	63	junctions	1	63
Culvert Bedding and Backfill	3/4"-0" crushed	71+95, 82+25, 86+80	N/A	load	11	loads (see instructions)	11	121
Turnouts	4"-0" crushed	73+50, 83+20	N/A	turnout	11	turnout	2	22
Surface Reinforcement	4"-0" crushed	82+70 to 83+70	4	station	25	stations	1	25
Landings	6"-0" pit-run	83+20	N/A	landing	22	landings	1	22
Total Rock for Road Segment:			I23 to I24					495

ROAD SEGMENT: I25 to I26				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I25 to I26		0+00 to 6+80		
				Volume (CY) Per		Number of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	2	22
Total Rock for Road Segment:			I25 to I26					22

ROAD SEGMENT: I27 to I28				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I27 to I28		0+00 to 37+00		
				Volume (CY) Per		Number Of		
Leveling Rock	4"-0" crushed		N/A	load	11	loads	12	132
Junctions	4"-0" crushed	0+00, 22+60, 28+35	2	junction	11	junctions	3	33
Turnouts	4"-0" crushed	6+00, 13+55, 17+50	2	turnout	11	turnout	3	33
Rock Ditch Filters	6"-4" pit run	9+40, 10+45	N/A	3 filter series	11	3 filter series	2	22
Culvert Bedding and Backfill	3/4"-0" crushed	20+20	N/A	culvert	33	culverts	1	33
Turnaround	4"-0" crushed	37+00	N/A	turnaround	11	turnaround	1	11
Total Rock for Road Segment:			I27 to I28					264

EXHIBIT D

ROAD SURFACING

ROCK TOTALS (CY)	6”-4”	6”-0”	4”-0”	1½”-0”	¾”-0”
6,184	121	660	4,170	947	286

Roads shall be uniformly graded, shaped and approved by STATE prior to rocking.

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 500 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the "Road Surfacing" table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

Load Records. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Moisture Content: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

Compaction Pass: A pass is defined as traveling a road section forward and then backward over that same section.

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	SUBGRADE COMPACTION OPTIONS
1A to 1B, 4A to 4B, 4C to 4D, 5A to 5B, 5C to 5D, 5E to 5F, 6A to 6B, 6C to 6D, and 7A to 7B	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	FILLS COMPACTION OPTIONS
All road segments	1, 2, or 3 and 4

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped, compacted, and approved by STATE before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be compacted and processed during the same project period it is spread, unless otherwise approved in writing by STATE.

Rock shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

ROAD SEGMENT	CRUSHED COMPACTION OPTIONS
All road segments requiring crushed rock.	1

Pit-Run Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of pit-run rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 8 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the “Forest Roads Specifications” table in Exhibit D.

ROAD SEGMENT	PIT-RUN COMPACTION OPTIONS
Segments requiring pit-run rock	1 or 5

EXHIBIT D

COMPACTION EQUIPMENT OPTIONS

(1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.

(2) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.

(3) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.

(4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

(5) Dozer. A dozer/track-type tractor weighing a minimum of 45,000 pounds as directed by STATE shall be operated over the pit-run rock so that the entire surface comes in contact with the tracks.

EXHIBIT E

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract.

Culverts 36 inches in diameter and smaller shall be constructed of corrugated polyethylene, unless otherwise specified in the Contract. Culverts larger than 36 inches in diameter shall be constructed of corrugated aluminized Type 2 steel, unless otherwise specified in the Contract. Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-11, Type S, or ASTM F2648. Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1]."

Polyethylene joints shall be made with split couplings, corrugated to engage the culvert corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the culvert joint.

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as specified in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing.

Cross Drain Culverts

Cross drain culverts on road grades in excess of 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low point of dips in roads shall not be skewed. Cross drains shall be skewed to fit the required culvert length to the road prism.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

Disconnect Culverts

The culvert inlet shall be located as close to the channel that it is disconnecting, while the culvert outlet shall be located as far from the channel as possible; discharge culvert outflow on the forest floor, allowing for filtration before the water enters the disconnected channel.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones, and other objects which would dent or damage the culvert. The culvert trench shall be excavated 3 culvert diameters wide to permit compaction and working on each side of the culvert. Tamping shall be done in 6-inch lifts, 1 culvert diameter each side of the culvert. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all live stream culverts.

Backfill shall consist of crushed rock on improvement segments and crushed rock or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert on new construction segments.

Transporting of the culvert shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted.

EXHIBIT E

CULVERT SPECIFICATIONS

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18” to 36”. Minimum vertical cover for other designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions. The shortest culvert section length shall be placed at the inlet end.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

The intake end of cross drain and disconnect culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, half round, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all culverts.

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground. Install a culvert marker at each existing culvert that is missing a marker that could be reached by a grader blade.

A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to STATE upon request.

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
*1	18”	30’	CPP	N/A	I5 to I6	6+60
2	18”	30’	CPP	N/A	I7 to I8	0+00
*3	18”	30’	CPP	N/A	I15 to I16	0+00
4	18”	35’	CPP	N/A	I21 to I22	2+20
5	18”	50’	CPP	N/A	I23 to I24	71+95
6	24”	30’	CPP	N/A	I23 to I24	82+25
7	18”	30’	CPP	N/A	I23 to I24	86+70
*8	18”	30’	CPP	N/A	I25 to I26	20+20
9	18”	35’	CPP	N/A	5A to 5B	23+00

TOTAL LENGTHS BY DIAMETER	
18 INCH	24 INCH
270’	30’

CPP = Polyethylene

* = Ditch Disconnect Culvert

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

1. Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.

2. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

3. Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.

4. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Unused shot rock material that is produced shall be piled in the vicinity of the rock pit as directed by STATE. Dirt, overburden, and reject material shall be hauled to designated waste area.

5. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Ditches, culverts, waterbars and other direct conveyances of water from the quarry or stockpile site(s) shall be constructed to drain to the forest floor in locations that will provide filtration. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.

6. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.

EXHIBIT G

PIT-RUN ROCK SPECIFICATIONS

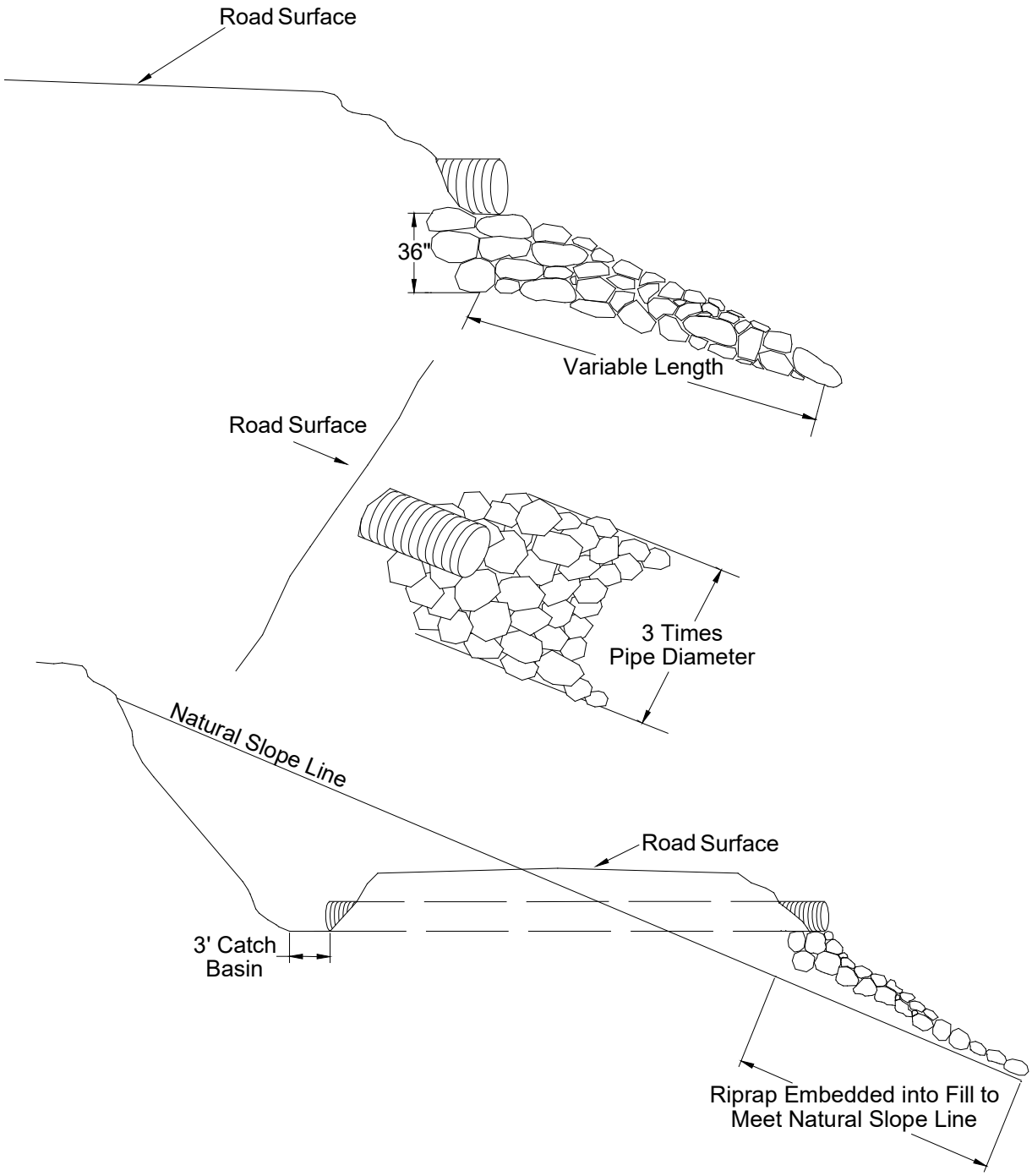
For 6”-0” Pit-Run	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	¼" sieve	0-10%

For 6”-4” Pit-Run A minimum of 50 percent of the material shall measure a minimum of 5 inches, measured in one dimension. Material shall be clean, well graded, and free of 3"-0" fines.

Control of gradation shall be by visual inspection by STATE.

EXHIBIT H

TYPICAL EMBEDDED ENERGY DISSIPATOR



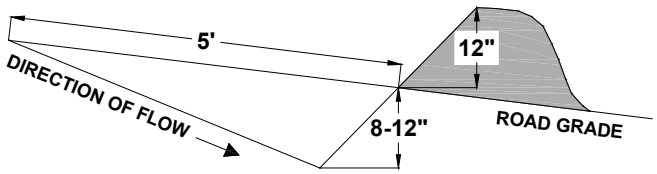
Dissipator shall be installed prior to the installation of the culvert, unless approved by STATE.

EXHIBIT I

WATERBAR SPECIFICATIONS

PROFILE

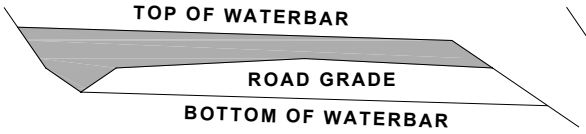
DITCHED AND OUTSLOPED



SPACING OF WATERBARS	
ROAD GRADE	DISTANCE
< 6 %	400'
6 - 10 %	200'
11 - 15 %	150'
> 15 %	100'

CROSS SECTION

DITCHED



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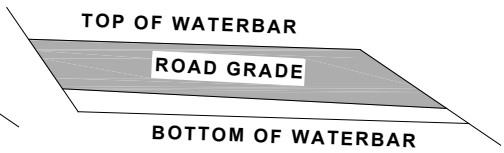
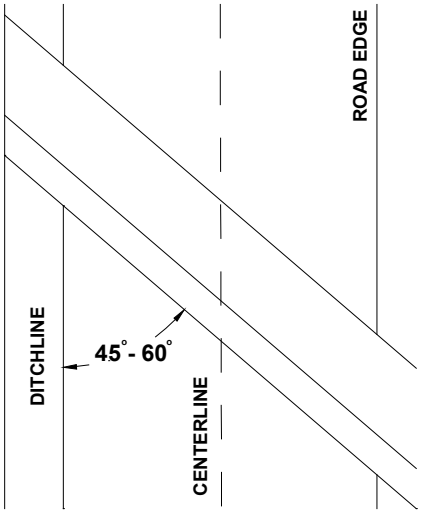


CONSTRUCT DITCHOUT THRU ANY EXISTING BERM.
CROSS DRAINAGE GRADIENT MINIMUM 3%.

PLAN VIEW

DITCHED



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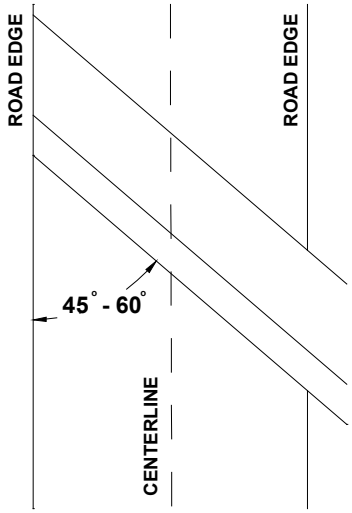

EXHIBIT J

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate at the following points: V1 to V2. Specific objectives for this project include:

(a) Fill removal and stream channel development.
(b) Culvert removal.
(c) Restoration of natural contours by outsloping of the road prism.
(d) Sidecast pullback.
(e) Minimize disturbance of existing vegetation.

(1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.

(1) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.

(2) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.

(3) Use of Excavated Materials.

i. Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cut slope to natural contours, or to a minimum 10 percent outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.

ii. Woody Debris Shall be placed on the surface of pullback/fill material.

iii. Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.

(4) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit I.

(5) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.

(6) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

(7) Support, including transport, other equipment, replacements, supplies, maintenance, and repairs, shall be furnished as required to complete the project and shall be furnished without cost to STATE, other than as agreed under the contract terms.

EXHIBIT J

ROAD VACATING SPECIFICATIONS

SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

Segment	Station	Work Description
V1 to V2	0+00	Begin road vacating as specified above in General Instructions and below in the Specific Instructions.
	4+00	Remove existing polyethylene culvert.
	7+70	Construct road block / waterbar. End road vacating

EXHIBIT K

SEEDING AND MULCHING

This work shall consist of preparing seedbeds, furnishing, and placing required seed, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and straw mulch to all waste areas and bare soils within 20 feet of streams resulting from Project Nos. 2 and 4.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Areas of disturbed soil shall be seeded by the end of the project period in which work was started. PURCHASER shall notify STATE within 24 hours of seeding and fertilizer application.

APPLICATION METHODS FOR SEED AND FERTILIZER

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other approved mechanical seeding equipment shall be used to apply the seed and fertilizer in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed and fertilizer are applied in dry form.

APPLICATION RATES FOR SEED AND FERTILIZER

The seed mixture listed below shall be applied at 100 lbs. per acre. The seed mixture shall be comprised of the following:

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	33%	95%	>90%
Orchard Grass	33%	95%	>90%
Perennial Rye	34%	95%	>90%

Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed.

APPLICATION RATES FOR MULCH

Place straw mulch to a reasonably uniform thickness of 1½ to 2½ inches. This rate requires between 2 and 3 tons of dry mulch per acre.

EXHIBIT L

STREAM ENHANCEMENT INSTRUCTIONS

General Instructions:

(a) Work shall be conducted only during the in-water working period between July 1 and September 15, annually unless otherwise approved in writing by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the required FPA "Written Plan" for this work.

(b) Stream crossings will be limited to those necessary to access the sites and whenever possible equipment shall operate from the banks to minimize stream disturbance. Turbidity shall not exceed 10 percent above natural stream turbidities as a result of work. The turbidity may be exceeded for a limited duration (per OAR 340-41), provided all practicable erosion control measures have been implemented. Oil spill response materials shall be on site before work begins.

(c) Trees required for stream enhancement work shall be conifers obtained from the sale area, or at other locations acceptable to STATE. Trees can have defects such as double tops, crooked trunks, heart rot etc. as long as they meet the required size dimensions.

(d) Trees shall be uprooted as needed, cut to length, and delivered to the project site, as directed by STATE. Trees shall be transported by log truck, or other means so that roads are not damaged (i.e. trees cannot be dragged on road surface).

(e) Windthrown timber should be set aside during harvest operations and be utilized whenever possible.

(f) Access routes shall be selected to minimize disturbance to the riparian area, and equipment transporting trees to the sites shall take care to avoid damage to existing in-stream logs, riparian or other trees**.** Trees that are cleared to gain access shall be placed in the creek or used to block access trails.

(g) A minimum 1½ cubic-yard, track-mounted excavator shall be used for all placement.

(h) All areas of bare or disturbed soils shall be seeded with an approved grass seed mix. Fertilizer shall not be used. All access trails shall be thoroughly blocked to prevent access using large woody debris or boulders, water barred, ripped or tilled, and mulched upon completion, as directed by STATE.

Specific Instructions:

Location	Work Description
SE1 to SE2	PURCHASER shall select 2 sites between SE1 to SE2. Each site will have 4 to 5 key logs at least 50 feet long and 20 inches in diameter with root wads attached (where available) and 4 to 5 additional pieces at least 30 feet long. Sites shall be at least 100 feet apart. Logs shall be placed as directed by STATE
SE3 to SE4	PURCHASER shall select 5 sites between SE3 to SE4. Each site will have 4 to 5 key logs at least 50 feet long and 20 inches in diameter with root wads attached (where available) and 4 to 5 additional pieces at least 30 feet long. Sites shall be at least 150 feet apart. Logs shall be placed as directed by STATE.
SE5 to SE6	PURCHASER shall select 2 sites between SE5 to SE6. Each site will have 4 to 5 key logs at least 50 feet long and 20 inches in diameter with root wads attached (where available) and 4 to 5 additional pieces at least 30 feet long. Sites shall be at least 150 feet apart. Logs shall be placed as directed by STATE.

FOREST PRACTICES ACT "WRITTEN Plan"
For Operations within 100 feet of Type F Stream

Timber Sale Area is located in Portions of Sections 1, 12, and 24 of T4N, R9W, and Portions of Sections 6, 7, 8, 18, and 19 of T4N, R8W, W.M., Clatsop County, Oregon.

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

North Fork Nehalem River
North Fork Fall Creek
South Fork Fall Creek
Unnamed Tributaries of the above listed streams

Specific Site Characteristics: (Physical habitat surveys were conducted in January through June of 2020.)

North Fork Nehalem River (Large, Type F) delineates the north timber sale boundary (TSB) of Unit 1 for a distance of approximately 2,600 feet before changing direction to the southeast and flowing through the interior of the Unit for a distance of approximately 1,900 feet. Downstream segments of the stream also delineate portions of the timber sale boundary in Unit 4 for a distance of approximately 800 feet. The stream is joined by four unnamed tributaries (Small, Type F) within Unit 1 with combined lengths of approximately 1650 feet. Within Unit 4 there are two unnamed tributaries (Small, Type F) of this stream with combined lengths of approximately 2,400 feet.

North Fork Fall Creek (Medium, Type F) flows southeast through the center of Unit 5 for a distance of approximately 3,700 feet and, further upstream, delineates a portion of the west timber sale boundary for an additional distance of approximately 750 feet. The majority of the stream within Unit 5 flows through low gradient topography resulting in a widened channel migration zone (CMZ), oxbows, side channels, and stream associated wetlands. Several unnamed tributaries (Small, Type F) within Unit 5 drain into the main stream channel with combined lengths of approximately 1,250 feet.

South Fork Fall Creek (Small, Type F) flows to the east and delineates the south timber sale boundary of Unit 5 for a distance of approximately 3,250 feet.

Tree and Vegetation Retention:
Vegetation within the buffers consists of a combination of conifers, hardwoods, and shrubs.

Type F streams within the Timber Sale Area are buffered at a minimum of 25 feet horizontal distance. No harvesting will be allowed within 25 feet horizontal distance of Type F streams. Thinning within the riparian management areas (RMAs) between 25 and 100 feet horizontal distance will leave a minimum of 120 square feet of basal area.

Resource Protection Practices:
Along all of the above-mentioned streams, as well as any other streams, the following practices are required under the timber sale contract, to protect the streams and streamside areas:

- No trees will be felled within stream buffers (RMA's), except as necessary in cable corridors.
- Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but shall not be lowered into the RMA's during yarding, except during rigging. During rigging, the lines must be pulled out of the RMA's when changing corridors.
- Logs shall be fully suspended when yarding across all stream buffers (RMA's).
- Cable corridors must be at least 100 feet apart where they cross the RMA's.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F and D streams. I agree to the protection measures listed on this plan:

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Original: Salem
CC: Operator, Purchaser, District file, Marketing Unit

FOREST PRACTICE ACT "WRITTEN Plan"
For Stream Enhancement Operations within 100 feet of Type F Stream

Timber Sale Area is located in Portions of Section 1 of T4N, R9W and Portions Section 6 of T4N, R8W, W.M., Clatsop County, Oregon.

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources:

North Fork Nehalem River

ODF has plans for stream enhancement projects at nine locations along the stream listed above which cover a distance of approximately 2,500 feet.

Specific Site Characteristics:

The streambed of North Fork Nehalem River (a large, Type F stream) ranges from approximately 10 to 20 feet in width, with low to moderate stream-bank slopes where operations will occur. Streamside vegetation is a mix of conifer, red alder, and salmonberry.

Tree and Vegetation Retention:

All logs for stream placement shall be taken from the timber sale area. Vegetation disturbance in the RMA's shall be kept to a minimum. There shall not be any harvesting permitted within the posted Buffer Zone (25 to 100 feet from the streams).

Practices:

Two stream enhancement structures will be constructed using ground based equipment in segment SE1 – SE2.
Five stream enhancement structures will be constructed using ground based equipment in segment SE3 – SE4.
Two stream enhancement structures will be constructed using ground based equipment in segment SE5 – SE6.

Each structure shall be created by placing eight to ten conifer logs (four or five approximately 20 inch DBH and 50 foot long with root wads attached and four or five tops approximately 30 feet long) in the Type F streams. The logs shall be placed with a log loader or excavator into the streams at locations specified by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work. All conifer logs shall be taken from locations within the Timber Sale Area. This work shall take place during the in-water work period (July 1 – September 15), unless otherwise approved in writing by STATE. No excavation shall be conducted during the stream enhancement. The approximate locations are shown on the Exhibit "A".

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Original: Salem,
Copies: Operator, Purchaser, District File, Sunset Unit

OREGON DEPARTMENT of FISH and WILDLIFE

FISH SCREENING PROGRAM

SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at **pumped diversions less than 225 gpm** (gallons per minute), but furnishes the following fish screening criteria information to the water right permit holder:

Screen material open area must be at least 27% of the total wetted screen area.

Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).

Mesh/Woven wire screen: Square openings shall not exceed 3/32 or 0.0938 inches (2.38 mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.

Profile bar screen/Wedge wire: Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

Screen area must be large enough not to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

An Active pump screen is a self-cleaning screen that has a proven cleaning system. The **screen approach velocity for active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

A Passive pump screen is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:

Oregon Department of Fish and Wildlife, Statewide Fish Screening Coordinator: 503.947.6229
Oregon Department of Fish and Wildlife, Screening Program Administrative Specialist: 503.947.6224

As evidence of having met fish screen installation requirements, please sign the certification and send to: **Oregon Water Resources Department, Water Rights Section, 725 Summer Street NE, Suite A, Salem, OR 97301-1271.**

Certification: I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

Applicant Signature: _____ Date: __/__/__ WRD File #: _____

Printed Name and Address: _____

Phone: (___)_____ Fax: (___) _____